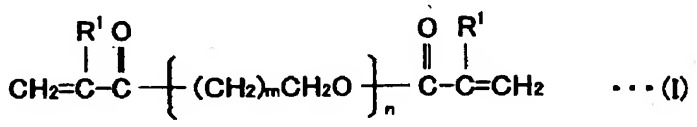
Claims

1. A resin composition for use in a hybrid lens in which the resin composition used for forming the resin layer of the hybrid lens comprising a resin layer bonded to a glass lens base material contains a radical polymerizable monomer and a silane coupling agent.

2. A resin composition for use in a hybrid lens according to claim 1, wherein the radical polymerizable monomer contains the following ingredient A and ingredient B:

Ingredient A: a di(meth)acrylate compound represented by the following general formula (I):

[Chemical formula 1]

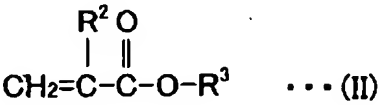


(I)

(where R^1 represents hydrogen or a methyl group, m represents an integer of 2 to 5 and n represents an integer of 1 to 16)

Ingredient B: a mono(meth)acrylate compound represented by following general formula (II):

[Chemical formula 2]



(II)

(where R^2 represents hydrogen or a methyl group and R^3 represents a cycloaliphatic hydrocarbon group with a number of carbon atoms of from 5 to 16).

3. A resin composition for use in a hybrid lens according to claim 2, wherein the radical polymerizable monomer further contains the following ingredient C:
Ingredient C: a urethanepoly(meth)acrylate having two or more (meth)acryloyloxy groups in one molecule, or an epoxypoly(meth)acrylate having two or more (meth)acryloyloxy groups in one molecule.

4. A resin composition for use in a hybrid lens according to claim 2, wherein the content of the ingredient A is from 30 to 90 parts by weight and the content of the ingredient B is from 5 to 40 parts by weight.

5. A resin composition for use in a hybrid lens according to claim 3, wherein the content of the ingredient C is from 5 to 50 parts by weight.

6. A resin composition for use in a hybrid lens according to claim 1, wherein the content of the silane coupling agent is from 1 to 10 parts by weight.

7. A method of manufacturing a hybrid lens including mold assembling steps of opposing a glass lens base material and a glass mold having a diameter substantially equal with that of the glass lens base material for transferring an aspherical shape, adhering an adhesive tape on the lateral surface of them to seal a gap between the glass lens base material and the glass mold thereby assembling a hybrid lens molding die.

8. A manufacturing method of a hybrid lens according to claim 7, wherein the maximum thickness for the gap between the glass lens base material and the glass mold is within a range from 1 to 10 mm and the ratio of maximum thickness/minimum thickness for the gap between the glass lens base material and the glass mold within an effective diameter is 4 or more and 20 or less.

9. A manufacturing method of a hybrid lens according to claim 7, wherein the method comprises, after the mold assembling step, an injection step of filling an UV-ray curable resin composition into a gap between the glass lens base material and the glass mold, and

a curing step of irradiating UV-rays to the UV-ray curable resin composition filled into the gap between the glass lens base material and the glass mold from both sides of the glass

lens base material and the glass mold thereby curing the UV-ray curable composition.

10. A manufacturing method of a hybrid lens according to claim 9, wherein the method includes, after the curing step, an annealing step of applying such a pressure as bringing the glass lens base material and the glass mold approaching to each other while heating to a temperature higher than the glass transition point of the curing product of the UV-ray curable resin composition.

11. A manufacturing method of a hybrid lens according to claim 9, wherein the method includes, before the curing step, a preliminary curing step of irradiating UV-rays thereby gelling the UV-ray curable resin composition.

12. A manufacturing method of a hybrid lens according to claim 7, wherein the glass lens base material treated with a silane coupling agent is used.

13. A hybrid lens wherein a resin layer formed of a resin composition for use in a hybrid lens containing a radical polymerizable monomer and a silane coupling agent is bonded to the surface of a glass lens base material.

14. A hybrid lens according to claim 13, wherein the maximum thickness of the resin layer is within a range from 1 to 10 mm.

15. A hybrid lens according to claim 14, wherein the ratio of maximum thickness/minimum thickness within the effective diameter of the resin layer is 4 or more and 20 or less.

16. A lens system using a hybrid lens in which a resin layer formed of a resin composition for use in a hybrid lens containing a radical polymerizable monomer and a silane coupling agent is bonded to the surface of a glass lens base material.

17. A lens system according to claim 16, wherein the maximum thickness of the resin layer of the hybrid lens is within a range from 1 to 10 mm.